PROGRESS

OF

MEDICAL SCIENCE.

MEDICINE.

UNDER THE CHARGE OF

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Aspiration of the Lung in the Diagnosis of Tuberculosis.—The diagnosis of pulmonary tuberculosis before bacilli appear in the sputum is becoming daily more important in practical medicine, since abundant experience shows that the diagnosis can sometimes be made with great certainty before there is sputum, and the X-ray apparatus and tuberculin test are neither always reliable nor always at hand. HENKEL (*Münchener medicinische Wochenschrift*, March 27, 1900) calls attention to the advantage of diagnostic puncture in such cases. The operation is done with strict aseptic precautions. The skin is washed with spirit of soap and ether, shaved, if necessary, the syringe is boiled, the hands are sterilized. Aspiration is made slowly and with short interruptions. The sputum after the operation is occasionally blood-stained, but actual hemorrhages have not been observed. At times there is a slight temporary rise of temperature. The author has never seen any injurious effects, but reserves the operation to the cases in which a positive diagnosis of the existing pulmonary disease cannot otherwise be made. The operation is useful in cases of pneumonia with delayed resolution, and cases of local bronchitis without sputum or without bacilli in the sputum. The puncture should be made where the physical signs are most distinct. Occasional assistance may be derived from the feeling of resistance of the lungs, especially when pleural thickening can be excluded.

Kinds of Gastric Secretion and their Anomalies.—A. SCHIFF (*Archiv für Verdauungskrankheiten*, Bd. vi. p. 107) has made an extensive series of examinations showing the relations of the different gastric secretions to each other in health and disease, and confirming on the whole what previous observers have found regarding the independence of these functions. The most resistant function is that which produces the diluting fluid. This is frequently present when the secretion of HCl and pepsin are entirely absent, as in many cases of achylia. In animal experiments this secretion can be excited independently of the others, and under the action of pilocarpine it appears earlier and in greater extent than the other secretions. The gastric juice produced by pilocarpine injections is, as a rule, of relatively low acidity, but, as in one of the author's experiments, may contain no free HCl. Next to the water secretion, pepsin is most readily produced. Both pepsin and water are absent only in cases of total atrophy of the mucosa and in many cases of achylia gastrica simplex. In some cases of achylia gastrica pepsin may be absent, though water is still secreted in the stomach. Secretion of pepsin is very constant and easily excited. In the majority of cases of hypochlorhydria and anachlorhydria as long as the mucosa is not destroyed pepsin may be normal, and pilocarpine injections produce a gastric juice at least as strong in pepsin as normal. The secretion of pepsin occurs readily, because the substance is already present in the glandular cells and seems to depend essentially on the energy of the current of gastric juice. The relatively equal amounts of pepsin under the influence of atropine and pilocarpine and in the normal secretion confirms this view. The most difficult function of the gastric glands is that of HCl secretion. The excitation has to bring about not only secretion, but also the production of a substance not preformed, by overcoming chemical affinities. The HCl secretion is the most sensitive function of the gastric glands. It is not only diminished, but often absent in many pathological cases where the pepsin and water are still present, and it can be diminished or checked by lowering the nervous excitability, as by atropine; although here, too, pepsin and water are diminished little or not at all. On the contrary, the increase of HCl secretion cannot be brought about by pilocarpine.

The Recognition and Importance of Bilirubin in the Stools.—SCHORLEMMER (*Münchener medicinische Wochenschrift*, 1900, No. 14) has investigated the bile-coloring matter in the stools, with the result that he entirely rejects Gmelin's test, because it frequently gives a positive reaction when bilirubin is not present. He uses Schmidt's test, carried out as follows: 2 to 3 c.cm. of the fresh fecal matter are rubbed up with concentrated watery sublimate solution. The mixture is allowed to stand in a covered glass dish, and then examined macroscopically and microscopically for green particles. The reaction is reliable, because the oxidation of the bilirubin never goes beyond the stage of biliverdin. The only confusion possible is by vegetable remains containing chlorophyll, which, however, are easy to recognize as such. All substances containing hydrobilirubin are stained red, giving the test another advantage. Examinations with this test led the author to conclusions rather different from some that have been handed down from previous observers, though he confirmed the generally accepted fact that in normal feces bilirubin is always absent. In a number of cases of disease of the stomach with normal stools, bilirubin was always absent, or occurred only in vegetable tissue and microscopic amorphous masses, apparently of soap. In cases of intestinal disease bilirubin was absent in only 4 cases out of 42. In most cases the test was microscopical only, but in 4 cases of acute enteritis and 2 of colitis, the macroscopic test was positive. The author's results show that in contradiction to previous views bilirubin may appear in the stools in diseases of the colon, as well as in that of the small intestine. Schorlemmer also has examined the particles of so-called yellow mucus supposed by some to indicate inflammation of the small intestine. He believes that these bodies are really albuminous. On the contrary, he finds, as Schmidt did, that small particles of mucus, often containing micro-organisms and granular débris of various kinds, frequently appear in the stools in disease of the small intestine, especially in typhoid fever, though he would only use them for the local diagnosis when there are at the same time numerous fragments of muscle fibre, starch granules, and fermentation.

Diabetic Laryngitis.—The late OTTO LICHTENSTERN (*Münchener medicinische Wochenschrift*, 1900, Nos. 16 and 17) describes this rare complication of the larynx in diabetes. It comes on as an acute circumscribed œdema, rapidly passing on to abscess. The process recurs in different parts of the larynx, especially in the region of the summits and posterior surfaces of the arytenoids, including the mesoarytenoid fold and the hypoglottic region. The abscess usually heals rapidly after it is opened, although the author observed in one case of hypoglottic abscess an abscess on the anterior wall of the larynx. There is no fever, and the general symptoms are mild. The author admits the possibility of the process occasionally becoming more serious, and compares it in this respect with disease of the lungs in diabetes. In regard to the cause, the author looks on overexertion of the vocal organs as a predisposing one. Bacteriological examinations could not be made, but the author admits that bacteria are most probably the exciting cause. He suggests, however, that possibly a toxic product of the diabetes may be the real cause.

The Differences between the Temperature of the Rectum and Axilla, Especially in Appendicitis.—SCHUELE (*Münchener medicinische Wochenschrift*, 1900, No. 18) has made a number of observations showing the relations of the axillary and rectal temperature. He found that this varies between 0.1° and 1.5° C. In two cases there was no difference. Some of the persons examined seemed inclined to slight differences; others to relatively great ones. The cause of the greater differences seem to be due to a relatively low temperature of the axilla. In afebrile persons the axillary temperature never exceeded 37.2°. The average of 162 measurements on 16 afebrile persons was 0.6° C. The difference in fever was usually less, *i. e.*, 0.4° C. In one case of appendicitis with abscess into the bowel, the difference varied from 1.1° to 1.4° during the development of the abscess. The author looks on this as perhaps of diagnostic value in suspected inflammation in the pelvis. This idea had previously been entertained by Lenander and Madelung, though Lenander found many cases of beginning abscess-formation with relatively small differences.

Acute Infectious Poliomyelitis Anterior in the Adult.—GUMPERTZ (*Berliner klinische Wochenschrift*, 1900, No. 16) adds to the small number of cases of this kind the following: A robust merchant, of twenty-three years, was taken sick for a few days with nausea, loss of appetite, lassitude, and fever. Four days after resuming work he became paralyzed. Examined soon after he was found free from cerebral symptoms, the left arm was paralyzed, the left leg was paretic, the muscles of the thigh relaxed, those of the leg slightly contracted. In the left buttock, near the spinal column, was a large furuncle. The knee-jerk was absent on the left side; normal on the right. The left deltoid muscle did not respond to the faradic current, sensibility was not impaired. The patient was treated with galvanization of the cord and galvano-massage of the paralyzed muscles. The paralysis gradually improved so that the patient could climb stairs, but easily became fatigued. There was atrophy and reaction of degeneration of the left deltoid muscle, but the biceps reacted almost normally. The absence of sensory disturbance, of pain, or increased galvanic irritability, and the fact that the paralysis was most marked in the beginning, excludes multiple neuritis. The sudden appearance of the symptoms and their extent excludes hemorrhage, so that acute anterior poliomyelitis of the rare hemiplegic form seems the only explanation. The author looks on the cause as an infection, probably typhoid. His suggestion that bacilli passed from the furuncle to the corresponding side of the cord is very plausible, but inasmuch as he also states that another abscess occurred on the opposite side, and as no observations were made of the bacteria in the abscess, some other explanation of the unusual localization of the disease must be admitted as possible.

A Study of Twenty four Cases of Typhoid Fever with Symptoms of Peritoneal Infection; Laparotomy.—GEO. B. SHATTUCK, J. COLLINS WARREN, and FARRAR (*Boston Medical and Surgical Journal,* June 28, 1900, p. 677) have published a most interesting report on twenty-four cases of typhoid fever in which there were symptoms of peritoneal infection, for which exploratory laparotomies were performed. They report in all on twenty-seven cases, but in three the proof of a typhoid infection was not sufficiently strong to include them. These cases were under treatment in four of the Boston hospitals since 1895.

Out of the twenty-four cases of true typhoid, only seventeen were cases of peritoneal infection from actual perforation of the intestinal wall. In two cases there was a general infection from threatened perforations or areas of necrotic peritoneum; in one case a general infection from a ruptured mesenteric gland; in one case a general infection from an unknown cause, presumably intestinal perforation; in three cases there was no certain cause for the symptoms which demanded operative interference. In other words, there were twenty-one cases of grave peritoneal infection in typhoid fever and three cases of mistaken diagnosis, but with symptoms of peritoneal infection.

Eighteen of the twenty-four cases were males and six were females. In eighteen of the twenty-four cases the clinical nature and course of the typhoid were mild, and in fifteen of these eighteen mild cases perforation or general septic peritonitis was present. These data show, as has been generally held, that there is no relation between the severity of the course of the fever and the likelihood of intestinal perforation.

In five cases the acute abdominal symptoms appeared at the end of the second or first of the third week, in eight cases at the end of the third week, in one case during the fourth week, in four cases during the fifth week, in one case during the ninth week, in one case during the eleventh week in a relapse.

Seven cases of the twenty-one in which operation found cause for the symptoms presented a sudden acute picture of grave abdominal infection without any premonitory symptoms. In fourteen there was a more or less gradual onset of the abdominal symptoms, or at least distinct warning symptoms which antedated the equally distinct severe and diagnostic symptoms.

In the seven cases with no warning symptoms operation was done within twelve hours in every case. In the fourteen cases in which there were warning symptoms the average time of the operation, after the onset of the early warning symptoms, was twenty-three hours.

Of the twenty-one cases in which the local or general peritoneal infection was found at operation, three cases recovered—that is, 14.3 per cent. Taking their twenty-four cases of typhoid fever which were operated on, twenty-one with abdominal infection and three with no infection found at operation, they had six cases of recovery from laparotomy in typhoid fever, or 25 per cent.

Concerning the question of diagnosis, the fact that these writers had diagnosed general peritonitis in three cases without any peritonitis being found at operation is further proof of the great difficulty of making a diagnosis of peritonitis in some cases.

With regard to the study of the leucocytes in their cases, they say that they are not able to establish anything new and valuable in regard to leucocytes as a symptom, owing to lack of sufficient data. Their one conclusion is that the leucocyte counts in typhoid cases should be sufficiently frequent to be of comparative value; that any complaint of abdominal pain or the appearance of abdominal symptoms demand frequent counts.

From an analysis of their series of cases the writers conclude that:

(1) In many very sick typhoids perforation or peritoneal infection cannot be diagnosed until the results are already wide-spread and of fatal extent. The chances of a fatal issue from an abdominal operation in such cases are overwhelming.

(2) In mild typhoids of fair general condition an abdominal operation is readily borne, provided no peritoneal infection is present.

(3) A small number of mild typhoids may have sudden perforation with free extravasation. In these the symptoms are fulminant, but localized to a great extent, and in these

(4) Operation must be done at once, for general infection may become past relief in from one to five hours, and walling off of the perforation by protecting adhesions is so rare as not to be counted upon.

(5) In the majority of mild cases, beginning infection (whether from perforation or not) is marked by comparatively slight symptoms—local pain, tenderness, spasm, and leucocytosis. The severe subsequent symptoms were due to general peritonitis.

(6) These warning symptoms demand serious consideration and study, but in many cases are either not rightly understood or not acted upon.

(7) Complaint of abdominal pain in a case of typhoid should always lead to a suspicion of beginning peritoneal infection.

(8) Frequent leucocyte counts are needed in every case of typhoid. In the presence of abdominal pain an hourly count is necessary.

(9) Pain associated with local tenderness and muscular spasm and a rising white blood count points in most cases to the advisability of an operation; in all cases to the necessity for a surgical consultation.

(10) In not a few of this series of cases operation was imperative a varying number of hours before it was done.

If it can be appreciated that the severe symptoms more often mean general peritonitis, it must be understood that the milder and earlier symptoms are the important ones.

Typhoid Fever in an Infant Nine Months Old; Recovery.—During the past five years there has been considerable controversy among physicians especially interested in diseases of children regarding the frequency of typhoid fever in infants under two years of age. NORTHRUP (*Presbyterian Hospital Reports*, New York, 1900, vol. iv. p. 74) held that the disease was rare in infants. He advanced the thesis that "typhoid fever is a disease to which there is little susceptibility in children under two years of age. In epidemics children under two years of age, though naturally little susceptible, may, in the presence of an overwhelming poison (multiplied exposures), acquire typhoid fever." This view was strongly assailed by nearly all the Pediatric Society, but was supported by Rotch and Holt. Lovet Morse, of Boston, is also led to support this view as a result of his experience with the Widal test in continued fevers of doubtful origin in infants coming to the dispensary in Boston.

In the extensive epidemic of typhoid fever in Stamford, Conn., there were four cases under two years of age, one of which terminated fatally.

Northrup himself reports an undoubted case in a female infant of nine months. The child had been breast-fed, but there were five other members of the family down with typhoid fever, and she had been crawling about the bed of her father, ill in his second week, and that of a brother who had been ill for seven weeks.

The diagnosis in this case was made on the continued fever, enlarged, palpable spleen, rose-spots, and two positive Widal tests.

Northrup personally has seen six cases of undoubted typhoid fever in patients of two years and under, viz.: nine, thirteen, sixteen, twenty-two, and twenty-four months of age, and draws the following conclusions:

(1) The diagnosis in all these cases was easily made on signs and symptoms characteristic of typhoid in adults.

(2) The cases were all intimately associated with others in the family.

(3) Skepticism should be encouraged concerning any diagnosis of typhoid fever in an infant (under two years of age) not intimately associated with other cases.

(4) The most common mistakes arise from misnaming as typhoid the following diseases: Grippe, subacute catarrhal enteritis, central pneumonia, and malaria.

A Rapid Method of Fixing Blood-films for Ehrlich's Stain.—SOLLEY (*Presbyterian Hospital Reports*, New York, 1900, vol. iv. p. 169) has endeavored to find some suitable rapid method of fixing dried blood films to take the place of the slower method of fixing by heat. Various agents were tried without success, the main difficulty being in getting something to fix both the red and white cells equally well.

G. A. Tuttle experimented with solutions of chromic acid of various strengths. He eventually found that a 2 per cent. solution of chromic acid poured on the film and allowed to remain for exactly thirty seconds gave uniformly good results, both red and white cells taking up their special stains clearly and surely. Solley states that the nuclei and granules of the leucocytes stain quite as sharply as in the best specimens fixed by heat, while the protoplasm of the mononuclear lymphocytes is usually better stained than by the latter method.

After the chromic acid solution has been on the smear for thirty seconds it is thoroughly washed off, the excess of water being removed by tapping a corner of the square on filter paper. Ehrlich's triple stain is allowed to remain on the smear for three minutes. The stain is then washed off, the smear dried between filter-paper, and then mounted in balsam in the usual way.

Unfortunately, the article does not state whether the chromic acid is dissolved in water or alcohol, but it is inferred that the former is used.

SURGERY.

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Median Osteotomy of the Hyoid Bone as a Method of Performing Pharyngotomy.—VALLS (*Rev. de Chir.*, May 10, 1900) proposes this new operation in order to overcome some of the dangers and difficulties that surround the removal of malignant or benign growths from the pharynx or the base of the tongue, and that are met with in the complete removal of the tongue.

The method of operating is as follows: An incision in the median line is carried from the mental symphysis to the thyroid cartilage. The skin and subcutaneous tissue can be incised at one cut. The bleeding is insignificant. The next step is the denudation of the hyoid bone in the median line. The superficial cervical aponeurosis is incised, the myohyoid muscle is raised in the median line by using the grooved director, so that its upper border can